

A Process Evaluation of the California DNA Cold Hit Program

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EXECUTIVE SUMMARY

This report summarizes the results of a process evaluation of the implementation of the DNA Cold Hit Program. The purpose of this process evaluation is to examine the effectiveness of the program with an emphasis on identifying and overcoming key obstacles related to the reduction of the statewide backlog of unsolved "suspectless" sexual assault cases with the use of DNA analysis. One of the goals of this process evaluation is to make permanent improvements in the capacity of the forensic laboratories that conduct DNA analysis.

At the time of this report, the DNA Cold Hit Program has been operational for slightly less than three years. The program was originally allocated \$50,000,000. However, since the anticipated workload has decreased, the amount of funding allocated to the program was reduced by OCJP, and currently stands at \$26,930,141. All funds for the program have been allocated to the grantees, which have until June 30, 2005 to complete all their casework and receive reimbursement.

The Cold Hit Program Objectives can broadly be defined as:

- 1) The identification and inventory of evidence;
- 2) Screening of evidence for biological material;
- 3) Attempting to obtain DNA profiles;
- 4) Searching DNA profiles;
- 5) Identifying and confirming offenders and linking cases;
- 6) Training and quality assurance; and
- 7) Website tracking of cases and program accomplishments.

The program consists of 17 projects funded for a three-year grant cycle, ending on September 30, 2003, unless otherwise extended as needed up to January 31, 2005. Fifteen of these projects are with public laboratories located in cities and counties throughout the state, while two projects are with the Department of Justice (DOJ). The first DOJ project makes available the services of its 11 regional crime laboratories within the Bureau of Forensic Services (BFS). The second project is for the administrative oversight of this program, which includes functions such as quality assurance, coordinating searches of offender databases, website administration, training DNA analysts, and overseeing the out-sourcing of excess DNA profiles to private laboratories.

During the first year of the Cold Hit Program the laboratories hired and trained dozens of new criminalists on the analysis of DNA, and have purchased all the new equipment

necessary to conduct DNA analysis. Thousands of qualified cases statewide have been identified. Many of those cases have been logged into the Cold Hit Website as they were inventoried, screened, and profiled. Additionally, searches of offender databanks using these DNA profiles have resulted in dozens of cold hits and case-to-case matches. Many of those cold hits have been verified, while case-to-case matches have led to the linking of evidence in previously unrelated crimes.

This report addresses the five questions required of all OCJP evaluations by the Legislative Analysts Office.

A. Are the grant objectives being achieved?

The majority of the grant objectives are on track and are being achieved. The program is making significant progress in the identification and inventory of evidence; screening the evidence for biological material; obtaining DNA profiles; searching the profiles through local, state and federal databases; and the identification and confirmation of offenders or the linking of related cases. So far, the program has inventoried 8,937 sexual assault kits, screened 6,997 items of biological evidence, profiled 3,314 DNA samples, and uploaded 2,226 DNA profiles into the Combined DNA Index System (CODIS). As a result, this program has identified matching DNA on 146 offenders and has linked DNA profiles in 107 related cases. However, the accomplishments of the training and quality assurance objectives are unknown, and the manner in which information is made available through the Cold Hit Website is not consistent.

B. Are the program elements working?

Generally, the program elements are working. Efforts to identify and reduce the backlog of biological evidence are proving to be successful. The screening of biological evidence is having good success in yielding DNA samples that can be profiled and searched against local, state and national DNA databases and offender databanks. Finally, the number of “cold hits” continues to increase as DNA profiles continue to be uploaded into those databases.

C. Are the funds being spent efficiently?

Generally, the funds are being spent efficiently. The program was originally allocated \$50,000,000, of which \$23,069,859 (46%) has been returned to the General Fund. The funds are allocated to the crime laboratories based upon their performance in conducting inventories, and screening evidence and profiling DNA samples. However, an audit of the projects implemented by the Department of Justice has revealed significant questioned costs, and the development of the Cold Hit Website may not have been cost efficient.

D. Is the intended problem being addressed?

Yes, the intended problem is being addressed. The purpose of this program is to eliminate the backlog of unscreened biological evidence in “suspectless” cases where all investigative leads have been exhausted. This program has determined that the backlog of unscreened biological evidence is far less than was originally estimated. The program has identified the biological evidence backlogged, and is making good progress in conducting DNA analysis of it.

E. What lessons have been learned for other agencies?

Agencies that embark on a similar program should consult stakeholders at the local, state and federal level to operate the program and overcome obstacles. In addition several specific recommendations are made to increase the public’s knowledge of the power of DNA analysis; standardize procedures for the collection and inventory of evidence; continually monitor and improve the screening of evidence for biological material; improve methods for obtaining a DNA profile; improve methods for searching DNA profiles; improve procedures for identifying offenders and linking cases; and track the disposition of cases.

This report has also identified the need for California to standardize sexual assault evidence kits, track the number of sexual assault kits obtained as evidence and create an automated system for the electronic reporting of sexual assault forensic examinations.

I. BACKGROUND

A. Introduction

Deoxyribonucleic acid (DNA) is the molecular basis of heredity and can be found in microscopic particles of the human body. These microscopic particles are frequently found in biological evidence recovered from a crime scene or crime victim (e.g. skin, hair, blood, saliva, semen or other body fluids). Since DNA is unique to each individual, DNA analysis is now used as a method of forensic identification, as fingerprints have been for the last century.

Until recently, DNA analysis was generally restricted to investigations where a suspect had been identified and a fresh DNA sample could be obtained for comparison with DNA evidence. However, technological advances over the past few years have allowed for the coding of DNA profiles into computerized databanks of information, which can be searched electronically for comparisons. More importantly, the federal government and states across the nation, including California, have established and populated these DNA databanks with DNA profiles of offenders convicted of certain statutorily prescribed felonies. The process of successfully searching the DNA databanks and obtaining a match between a DNA profile obtained from biological evidence and a DNA profile contained in the databank is referred to as a "Cold Hit".

The California Budget Act of 2000 authorized the Office of Criminal Justice Planning (OCJP) to establish a grant program to fund the Department of Justice (DOJ) and local crime laboratories to conduct DNA analysis. In October of 2000, OCJP established the Cold Hit Program to fund the DNA analysis of evidence from unsolved or "suspectless" sexual assault cases.

Prior to this program, these cases had a low probability of ever being solved, as the biological evidence sat inactive in evidence lockers throughout the state. The intent of this program is to conduct DNA analysis of the biological evidence from these "cold" cases, and compare it to the DNA profiles of the recently expanded convicted offender DNA databanks, with the goal of matching the DNA evidence with the DNA of a convicted offender. This match would then result in identifying a previously unknown suspect.

The process evaluation presented in this report was begun at the time that the Cold Hit Program was initiated, in order to assist in the implementation of the program. The purpose of this process evaluation has been to examine the effectiveness of the program with an emphasis on identifying and overcoming key obstacles related to the reduction of the statewide backlog of unsolved "suspectless" sexual assault cases with the use of DNA analysis. One of the

* Please note that DOJ and other law enforcement agencies also use the term "Cold Hit" for other programs that are not associated with this one.

goals of this process evaluation is to make permanent improvements in the capacity of the forensic laboratories that conduct DNA analysis.

B. The Cold Hit Program

The Cold Hit Program originally received \$50,000,000 from the State General Fund in Fiscal Year 2000-2001. The funding level was initially based on an expected caseload of 30,000 sexual assault evidence kits (or SAEK's) statewide. However, the actual number of SAEK's that qualify for the program has declined during the implementation of this program, and presently stands at approximately 10,280. Since the anticipated workload has decreased, the amount of funding allocated to the program was reduced by OCJP. Funding for the program currently stands at \$26,930,141, with the surplus funds returned to the state General Fund. Although funding for the program was allocated to all grantees by June 30, 2003, they have until June 30, 2005 to complete all their casework and receive reimbursement.

The program consists of 17 projects funded for a three year grant cycle, ending on September 30, 2003, unless otherwise extended as needed up to January 31, 2005. Fifteen of these projects are with public laboratories located in cities and counties throughout the state, while two projects are with the DOJ. The first DOJ project makes available the services of its 11 regional crime laboratories within the Bureau of Forensic Services (BFS). The second project is for the administrative oversight of this program, which includes functions such as quality assurance, coordinating searches of offender databases, website administration, training DNA analysts, and overseeing the out-sourcing of excess DNA profiles to private laboratories.

C. Program Objectives and Elements

The Cold Hit Program Objectives can broadly be defined as:

- 8) The identification and inventory of evidence;
- 9) Screening of evidence for biological material;
- 10) Attempting to obtain DNA profiles;
- 11) Searching DNA profiles;
- 12) Identifying and confirming offenders and linking cases;
- 13) Training and quality assurance; and
- 14) Website tracking of cases and program accomplishments.

Each of these Program Objectives is discussed in more detail, along with the elements that constitute each objective.

1. Identification and Inventory of Evidence

One of the first challenges and accomplishments of this program was the development of a working model of the case eligibility requirements for this program. This working model facilitated the standardization of the types of cases processed by the various crime laboratories funded under this program. This working model is defined in the Program Guidance provided to all funded projects (see Appendix A).

a. The Identification Process

The Program Guidance specifies that the focus of this program is on the backlog of sexual assault cases that are unsolved or “suspectless”. Eligible cases can include, but are not limited to:

- "Suspectless" cases where no investigative leads have been established, all investigative leads have been exhausted, or named suspects have been eliminated;
- Cases that could be prosecuted under the current statute of limitations or determined to be prosecutable by the District Attorney's office;
- Cases with a sexual connection or component, which can include, but are not limited to:

Homicide: (Penal Code Sections 187, 190, 190.05, and 192 (a))

Forcible Rape: (PC Sections 220, and 261)

Sexual Battery: (PC Section 243.4)

Sodomy: (PC Section 286)

Lewd Act with a Child: (PC Sections 288, and 288(a))

Sexual Penetration with a Foreign Object: (PC Section 289)

After the development and distribution of the Program Guidance, memorandums were used to clarify types of cases that qualify under this program. These memorandums provided the following examples of “suspectless” cases:

- No suspect is identified;
- There is only a partial name of a suspect;
- The named suspect has been eliminated;
- There is insufficient evidence to obtain a blood sample from the named suspect, and all other investigative leads have been exhausted; and
- There are multiple suspects for a single investigation. In this example, only the DNA of unidentified suspects is eligible for testing.

The memorandums also provided examples of cases that do not qualify for this program:

- The sex was consensual;
- Charges have already been filed against a suspect;
- DNA testing has been requested to confirm or eliminate a suspect when all investigative leads have not been exhausted; and
- There is enough evidence to obtain a warrant for a blood sample of a named suspect but the investigating agency has failed to obtain the warrant.

Once the definition was clarified for the types of cases that qualify under this program, the laboratories were able to begin the identification and inventory of qualifying cases. Although the terms “kit” and “case” are often used interchangeably, there are some subtle differences. Not all cases, such as a homicide, involve a sexual assault evidence kit. Conversely, not all sexual assault evidence kits qualify for the Cold Hit Program, as the case may involve an active investigation or a clearly identified suspect. To complicate matters further, one kit could involve several cases (a sexual assault involving multiple perpetrators), or a single case may have multiple kits (a single perpetrator linked to several victims/survivors). To simplify, the term “case” will be used, except when specifically referencing the sexual assault evidence kit directly.

Laboratories, in concert with the law enforcement agencies in their service area, use a variety of strategies to identify cases. Some laboratories have access to very detailed case management systems, and are able to quickly identify possible qualifying cases. They then generate a list of the potential cases, which are provided to local law enforcement with instructions to forward the case evidence to the laboratory for analysis. Other laboratories take a different approach. Some laboratories direct local law enforcement agencies to conduct a physical audit of their property storage areas for kits, and note the case numbers. These lists of cases are then sent to a specialized investigative unit (usually some form of sex crimes unit) to determine if the cases qualify for the program. A fiscal incentive was established in the program to pay the submitting law enforcement agency \$50.00 for each kit submitted to laboratory.

Additionally, OCJP, DOJ, and some laboratory staff have made presentations to Chiefs of Police and Sheriffs organizations, Sexual Assault Investigator and Property Clerk associations, as well as Victim Advocate groups to assist in explaining the purpose of this program and solicit the assistance of those organizations in identifying sexual assault cases with biological evidence that might be eligible for this program.

b. The Inventory Process

The inventory process mainly consists of laboratory personnel retrieving the case evidence (often a Sexual Assault Evidence Kit or “SAEK”) from either their evidence storage areas, or from law enforcement agencies within their service areas, and reviewing the contents of the kit. The laboratories usually store the most recent cases internally for 12 to 24 months before being returned to the local agency. In older cases, laboratory staff often contact law enforcement agencies in their local area to provide details of which cases are eligible for the program and arrange for the transportation of the physical case evidence to the laboratory. Once at the laboratory, the contents of the kit are inventoried. Items in the kit often include swabs, fingernail scrapings, hair combings and cuttings from undergarments or bedding. Items in the kit with the highest probability of yielding biological evidence (blood, saliva, sperm, sweat, skin, etc.) are selected for screening.

2. Screening of Evidence for Biological Material

Those items in the kits thought to yield biological evidence are subjected to a variety of tests within the laboratory. Once an item in the kit is screened and determined to be positive (or referred to as being “probative” by laboratory personnel) for further testing, it can be profiled.

Not all kits contain items that produce viable evidence for profiling. Sometimes, the perpetrator will actively take steps to limit the amount of biological evidence left behind, such as wearing a condom or forcing the victim to bathe. In other instances, the quantity or quality of the biological evidence limits further testing. Past experience has revealed that only an estimated 60% of all evidence screened will contain sufficient biological evidence to move forward in the process for profiling.

3. Obtaining DNA Profiles

Items from a kit that are identified as probative for biological evidence can be profiled. Sophisticated instruments are used to turn the biological material into an electronic profile. As with screening, not all attempts at profiling are successful. The profile may match the victim or a previous partner or otherwise be determined to be too weak or too complex a mixture to qualify for uploading and searching against the various databanks. DNA profiling can be conducted at either 9 or 13 loci (each loci is a different physical location on the chromosome), and searched against a local, state, or national databank of known convicted offenders, as well as other criminal cases.

4. Searching DNA Profiles

Once a DNA profile has been developed in a case, it can be searched against profiles obtained from other crimes, or against a databank of known convicted offenders. Searches of profiles against solved cases or against qualifying offender profiles can rapidly provide leads in cases that were previously considered unsolvable. The offender databases include DNA profiles developed from blood samples taken from felons convicted of violent crimes such as murder, voluntary manslaughter, rape, kidnapping, burglary, robbery, arson, and carjacking. This function is coordinated as part of DOJ's administrative project.

The DOJ established the CAL-DNA databank system as a result of the DNA Act of 1994. Through this system, the DOJ oversees the exchange and searching of DNA profiles in California as well as the connections and coordination with the FBI and the national index. Searches can be conducted at three levels: local, state, or national.

Cases that have been profiled up to 9 loci can be searched at the Local DNA Index System (LDIS), or the CAL-DNA system. At the time of this report, the CAL-DNA had over 208,686 qualifying offender profiles available for searching, (DOJ Cold Hit Website).

However, by agreement with the FBI, an attempt must be made at 13 loci in most instances to search against the National DNA Index System (NDIS). Under the Cold Hit Program, crime laboratories have been given additional monetary incentives for profiling at 13 loci, to facilitate a nationwide search in NDIS, which currently has over 900,000 offender profiles. By profiling at 13 loci and searching nationally, the likelihood of obtaining a match increases substantially. Searches of these various systems are facilitated by the Combined DNA Index System (CODIS) established by the FBI and maintained in California by DOJ. The CODIS database is a local, state, and national warehouse of DNA from cases and offenders that can be searched against each other. As part of DOJ's administrative project, they oversee the qualification process for the laboratories in California to utilize CODIS, as well as coordinating the searching of profiles once the individual laboratories are CODIS certified.

In California, as new crime laboratory DNA programs are established (in some cases with the assistance of the Cold Hit Program), they conduct most of their profile searches against other criminal cases in their own jurisdiction and database (LDIS). As the laboratory qualifies and the FBI completes the installation of the CODIS software, the laboratories are connected to the CAL-DNA state Index, which allows case-to-case searches and case-to-offender searches statewide. Laboratories must complete additional FBI requirements to be authorized to have their data stored at the national index, NDIS level.

5. Identifying and Confirming Offenders and Linking Cases

As mentioned above, DNA profiles from an unsolved case can be searched either against other unsolved cases (case-to-case), or against the various levels of offender databanks. If a DNA profile from an evidence kit matches a DNA profile obtained from another evidence kit, this is referred to as a “Case-to-Case” match. Although a Case-to-Case match does not result in the identification of a suspect, it does assist the overall investigation, as information that is gathered from the investigations of the two (or more) previously unrelated cases can be combined.

Once a “cold hit” occurs, reanalysis of the biological evidence involved with the case is conducted to confirm the match. This confirmation process may include reanalysis of items in the sexual assault evidence kit as well as a new reference sample from the offender. New reference samples can easily be obtained from convicted offenders in custody. However, in some cases a cold hit may identify a suspect after that offender has been released from custody, and obtaining a new reference sample may be problematic. In many cases, local law enforcement is able to locate and apprehend a suspect to obtain a search warrant and draw a new blood sample for confirmation. However, it is not unusual to have a higher number of cold hits than confirmations.

6. Training and Quality Assurance

In addition to the project involving the DOJ Bureau of Forensic Services laboratories, the DOJ also receives funding to provide training of Cold Hit grant-related staff and establish a quality assurance team.

To accomplish this task, the DOJ was required to expand its training program to accommodate the increased need for qualified DNA analysts in public laboratories throughout the state resulting from this program. The training conducted by the DOJ includes the following courses:

- Case Approach to Biological Evidence Examination: This course is a combined lecture, demonstration and laboratory course designed to provide a comprehensive approach to biological evidence examination.
- Basic Forensic Serology: This course provides students with a basic understanding of the theory and practice of analytical techniques used in body fluid identification.
- DNA – Extraction & Quantification: This course provides students with information on basic DNA chemistry; the logic used in the forensic analysis of DNA; sample handling considerations; contamination

issues/sterile technique; DNA extraction techniques; and DNA quantification techniques.

- DNA-Polymerase Chain Reaction (PCR) Short Tandem Repeat (STR): This course provides students with information on DNA-PCR STR typing.
- PCR-DNA: Advanced Short Tandem Repeat (STR) Analysis and Typing: This course is a combined lecture and computer laboratory course designed to provide comprehensive hands-on exposure to the computer analysis of short tandem repeats.
- Statistics in DNA Analysis: This course covers concepts in genetics, database construction and evaluation, population genetics, and calculating multi-locus genotype frequencies for DNA profiles. This course also reviews the recommendations made by the 1996 National Research Council report "The Evaluation of Forensic DNA Evidence".

This program also provides funding to the DOJ to implement a quality assurance program to ensure that cases have been properly screened and profiled. This is necessary to meet national standards on DNA testing, as well as ensuring that accurate information is entered into the CAL-DNA databank. Under this quality assurance program, all laboratories submitting profiles must meet established standards and participate in a proficiency-testing program to satisfy a national certification requirement and to evaluate the ability of the laboratory to provide an accurate result.

In addition, the DOJ administrative project included awareness meetings and training for local law enforcement and crime laboratories on inventory procedures, standard reporting forms and use of the web-based tracking system.

7. Website Tracking of Cases and Program Objectives

As a part of their administrative project, the DOJ assumed the lead in a contract with an outside consultant to design and develop a Cold Hit Website. The functions of the website include, but are not limited to the following:

- Providing statistical data on the progress of the Cold Hit Program;
- Tracking the work accomplished by each laboratory grantee in fulfilling each program objective;
- Creating an individual case tracking system to ensure that each case is followed to completion;
- Displaying the work accomplished by each grantee during different grant periods;
- Providing a management tool for the workflow (mostly profiling) between public and private laboratories;

- Producing various statistical reports upon request; and
- Coordinating reimbursement to local law enforcement agencies.

Many of the functions listed above are only accessible to program related staff with the use of a password. There is, however, a public section containing some basic information and current statistics on the program. Those interested in tracking the progress of the Cold Hit Program, or looking for additional information are encouraged to view this section of the website at:

<http://hosting.squaretree.com/coldhit/>

The Cold Hit Website is an interactive portal that is used by the laboratories to collect information regarding each case that is submitted, as well as the work completed by each laboratory within the grant period. This information is displayed on the Statistical page of the website, and stored in a database that can be queried for future use.

D. Program Funding and Implementing Projects

The Cold Hit Program involves four laboratories attached to city police departments, 11 laboratories aligned with the county district attorney offices or sheriff departments and 11 regional DOJ laboratories that service multiple counties. See Table 1.1 for details.

Table 1.1 Participating Laboratories by Jurisdiction	
City Crime Laboratories	
Los Angeles Police Department Science Services Bureau	
Oakland Police Department Crime Laboratory	
San Diego Police Department Crime Laboratory	
San Francisco Police Department Crime Laboratory	
County Crime Laboratories	
Alameda County Crime Laboratory	
Contra Costa County Crime Laboratory	
Kern County District Attorney's Forensic Science Division	
Los Angeles County Scientific Services Bureau	
Orange County Forensic Science Services	
Sacramento County District Attorney's Crime Laboratory	
San Bernardino County Forensic Laboratory	
San Diego County Crime Laboratory	
San Mateo County Forensic Laboratory	
Santa Clara County District Attorney's Crime Laboratory	
Ventura County Crime Laboratory	
Department of Justice-Bureau of Forensic Services Regional Laboratories	
Richmond	
Central Valley	
Chico	
Eureka	
Freedom	
Fresno	
Redding	
Riverside	
Sacramento	
Santa Barbara	
Santa Rose	

Laboratory grantees were provided a "Funding Fee" schedule in which to build a budget. The "Funding Fee" schedule is as follows:

Service	Fee
Inventory	\$50
Screen	\$250
Profile In-house (9 loci)	\$1,700
Profile In-house (13 loci)	\$2,000
Profile Out-source	\$0
Confirmation	\$4,500

Each laboratory was able to develop a rough budget based on the projected workload (the number of cases projected for inventory, screening, profiling, and confirmation). It should be noted that the laboratories were not reimbursed on a “per item” basis. For example, the laboratories do not receive \$250 after each case screened or \$4,500 after each confirmation of a suspect. Rather, the laboratories were allocated funds based upon projected cases. This allowed the project to purchase equipment and hire and train staff to conduct the various objectives of the project. Projects then request reimbursement for expenditures on a quarterly basis.

Funding in the amount of \$26,930,141 has been allocated for this program. A list of the amounts allocated to the DOJ and participating laboratories is provided in Appendix B.

II. METHODOLOGY

As mentioned previously, this process evaluation began with the initiation of the Cold Hit Program. An evaluator was hired by OCJP and assigned to work closely with the staff of OCJP's Crime Suppression Branch to closely monitor and assist in the implementation of this program. This process evaluation provided ongoing assessment and feedback on the program implementation to OCJP program staff, identifying problem areas and obstacles and assisting in making modifications to the program. The process evaluation included, but was not limited to the following activities:

- Assistance in the development and subsequent modification of the Program Guidance outlining the minimum technical requirements necessary for a public laboratory to participate in this program;
- Assistance in the development of a spreadsheet listing the number of reported sexual assaults each year, by jurisdiction, used by laboratory staff as a guide when contacting law enforcement agencies to solicit cases.
- Assistance in the development and clarification of the eligibility criteria that determines whether or not cases are eligible for screening and profiling through this program;
- Assistance in the development and modification of the measurements to be used in evaluating the success of this program;
- An intensive review of the website developed by the DOJ contractor and feedback leading to the restructuring of the manner in which that website captures and reports information reflecting the accomplishments of this program;
- Participation in the awareness meetings conducted with Chiefs of Police and Sheriffs organizations, Sexual Assault Investigator and Property Clerk associations, as well as Victim Advocate groups to explain the purpose of this program and solicit the assistance of those organizations in identifying sexual assault cases with biological evidence that might be eligible for this program;
- A review and assessment of law enforcement methods and procedures for identifying eligible cases and submitting the biological evidence to the laboratories for inventory, screening and profiling;
- A review and assessment of the training and quality assurance project implemented by the DOJ, and support in addressing the problems encountered in measuring the implementation of that project;

- A review of grantee files and compilation of data from the grant applications, Status Reports and Progress Reports, as well as other communications between OCJP program staff and individual grantees (emails, letters, notes from telephone conversations, etc.);
- A review and assessment of data from the Cold Hit Website (and resulting database) through the use of queries, reports, and special requests to the website administrator;
- Coordination with the California Medical Training Center on the modification of forensic examination forms used to conduct forensic examinations of victims of sexual assault to ensure that the evidence collected meets the needs of the crime laboratories conducting DNA analysis.
- Continuous communication, through telephone conversations and email exchanges, with laboratory staff (directors, supervisors, managers, and criminalists) on the implementation of the program and obstacles encountered; and
- Participation in site visits of the laboratories with OCJP program staff.

These activities, along with data resulting from the established reporting mechanisms, have been extremely beneficial to the implementation of this program, and have revealed several significant observations and findings.

III. FINDINGS

The Legislative Analyst's Office has established five basic questions to be addressed by all OCJP evaluations. Those questions are:

- a. Were the grant objectives achieved?
- b. Did the program elements work?
- c. Were the funds spent efficiently?
- d. Was the intended problem addressed?
- e. What lessons were learned for other agencies?

Since this has been a process evaluation rather than an outcome-based evaluation, these questions are not applicable to this evaluation. An outcome-based evaluation cannot be conducted until after program activities have been completed for an established period of time. However, in keeping with the intent of the Legislative Analyst's Office, these questions have been modified to report the current status of the implementation of this program. Therefore, the following five questions are used when discussing the findings for this report:

- a. Are the grant objectives being achieved?
- b. Are the program elements working?
- c. Are the funds being spent efficiently?
- d. Is the intended problem being addressed?
- e. What lessons have been learned for other agencies?

Each of these questions is discussed individually below.

A. Are the grant objectives being achieved?

As stated previously, the grant objectives are as follows:

- 1) The identification and inventory of evidence;
- 2) Screening of evidence for biological material;
- 3) Attempting to obtain DNA profiles;
- 4) Searching DNA profiles;
- 5) Identifying and confirming offenders and linking cases;
- 6) Training and quality assurance; and
- 7) Website tracking of cases and program accomplishments.

Each objective is discussed separately. The projections reflected in these discussions were determined based on information retrieved from the Cold Hit Website as of July 22, 2003, and reflect the total of the projections for the first three years of the program. However, the accomplishments listed below reflect the current status according to the website, and do not reflect final figures for the implementation of this program.

1. The program is making significant progress with the identification and inventory of evidence.

Generally, the laboratories at the city level have an easier time identifying qualifying cases, as they often have only one property room to search, and review of the cases is usually done internally. Laboratories at the county level generally have a more complex task. They have to rely upon not only the sheriff's department, which might have multiple property storage facilities, but also the local police departments in their service area, many of which also have individual evidence storage facilities and individual internal case review processes. The DOJ regional laboratories had the most complex task of all, as they often serviced numerous counties. It also became evident that the DOJ laboratories, along with some of the larger county laboratories, had very little influence/leverage when they were tasked with contacting local law enforcement agencies within their respective service areas to ask them to review cases for possible inclusion into the program.

At the beginning of the Cold Hit Program, all grantees were required to provide OCJP with projections on the number of cases that would be inventoried during the first year of the grant. These inventory projections were then revised each grant year. The final projections, current accomplishments, and percentage of accomplishments for the inventory of cases are provided in Table 1.2 below:

Table 1.2			
Inventory Projections and Accomplishments			
Laboratory	Projected	Accomplished	Accomplished As of July 22, 2003
DOJ Laboratories	* 1,850	1,748	94%
City/County Laboratories	8,288	7,189	87%
Total	10,138	8,937	88%

The goal of this program is to inventory 100% of the projected cases by September 30, 2003. As shown above, the program is making good progress toward the accomplishment of that goal.

* This number reflects a recent grant modification to the DOJ projections.

2. The program is making significant progress with the screening of evidence for biological material.

At the beginning of the Cold Hit Program, all grantees were required by OCJP to provide projections on the number of cases that would require screening of the contents during the first year of the grant. These screening projections were then revised each grant year. The final projections, current accomplishments, and percentage of accomplishments for the screening of case evidence is provided in Table 1.3 below:

Table 1.3			
Screening Projections and Accomplishments			
Laboratory	Projected	Accomplished	Accomplished As of July 22, 2003
DOJ Laboratories	* 1,700	1,489	88%
City/County Laboratories	8,089	5,508	68%
Total	9,789	6,997	71%

The goal of this program is to screen 100% of the inventoried cases by February 1, 2004. Good progress is being made toward that goal. Also as of July 22, 2003, the website showed that 61% of the evidence screened contained items that tested positive for the presence of biological evidence.

3. The program is making progress in obtaining DNA profiles.

At the beginning of the Cold Hit Program, all grantees were required to provide projections on the number of cases that would contain biological evidence suitable for profiling during the first year of the grant. These profiling projections were then revised each grant year. The final projections, current accomplishments, and percentage of accomplishments for the profiling of case evidence is provided in Table 1.4:

* This number reflects a recent grant modification to the DOJ projections.

Table 1.4			
Profiling Projections and Accomplishments			
Laboratory	Projected	Accomplished	Accomplished As of July 22, 2003
DOJ Laboratories	* 1,700	** 898	53%
City/County Laboratories	4,015	** 2,416	60%
Total	5,715	** 3,314	58%

The goal of this program is to attempt profiling on 100% of the screened kits containing probative evidence by December 31, 2004. As of July 22, 2003, 77% of the evidence profiled contains identifying characteristics on nine or thirteen loci.

4. The program is making progress in searching DNA profiles.

As previously mentioned, crime laboratories can search LDIS databases and the CAL-DNA database with profiles of 9 loci without having to meet federal criteria. There are 208,686 profiles in the CAL-DNA database alone. However, the DOJ is obligated to follow protocol established by the FBI when searching profiles via CODIS. Searching at the National level (NDIS) requires that the FBI certify both the laboratory and the individual criminalist who conducted the profiling. This requirement has led to some unforeseen complexities, and the procedure for searching at all levels, (LDIS, CAL-DNA, and NDIS) continues to evolve. Most California laboratories have completed the process of connecting to CODIS. As of July 22, 2003, the DOJ had uploaded 2,226 cases into CODIS through this program.

5. Progress is being made with the identification and confirmation of offenders and linking cases.

As of July 22, 2003, this program has produced 146 cold hits, meaning that the DNA profiles from those unsolved cases match an offender in an offender databank (either local, state or national). Of those, 76 (52%) have been confirmed and the remainder are pending confirmation.

* This number reflects a recent grant modification to the DOJ projections.

** These numbers include profiles outsourced to private laboratories.

Additionally, as of July 22, 2003, this program has produced 107 “case-to-case” matches, meaning that the profile matches a profile from one or more unsolved cases in CODIS. A “case-to-case” match links those separate crimes to the same unknown offender, and provides valuable clues for investigators. In the event that a cold hit is made on one case, all of the matching cases will share the same suspect.

If an immediate match does not occur, the profile remains in CODIS and continues to be searched as the database grows.

6. The accomplishments of this program for the training and quality assurance objectives are unknown.

As previously mentioned, training and quality assurance are the responsibility of the DOJ through its administrative project. However, the DOJ did not follow the activities as outlined in their original administrative grant proposal for training and quality assurance services.

Training: The DOJ was to provide program related training at the California Criminalistics Institute (CCI) for criminalists to conduct profiling of Cold Hit cases. During subsequent discussions with DOJ staff during monthly meetings, DOJ stated that they were providing training to all criminalists in the state, regardless if they were involved with Cold Hit related activities. The laboratories have provided feedback that they are not receiving adequate training from DOJ. Efforts have been made to address this issue with DOJ, but to date DOJ has failed to provide credible reports of the training conducted with grant funds under this program.

Quality Assurance (QA): The original DOJ grant application specified that DOJ would conduct a technical review of 5% of the cases profiled. This required major equipment purchases, laboratory supplies, and 2-3 criminalists, which were charged to the grant. The QA requirement was later modified (without prior authorization from OCJP) to conduct DNA Advisory Board (DAB) audits. These DAB audits consist of a review of procedures at individual laboratories, and do not require the major equipment and related laboratory equipment that was purchased under this program. Additionally, the number of DOJ criminalists assigned to the QA function has not been consistently reported.

Managers from DOJ are currently working with OCJP program staff to implement a corrective action plan to remedy these problems.

7. The DOJ Cold Hit Website is operational and provides a useful tool in the implementation of this program, but lacks oversight and quality control measures.

At the beginning of the grant DOJ received funds to contract for the design and implementation of a website to track cases, display grantee accomplishments, and perform other program specific functions. The DOJ was also responsible for the training of laboratory staff on the use of the website.

The website seems to track cases well, however, the completeness and accuracy of the data presented by the website is not consistent. Since many of the data fields on separate screens contain data that is entered separately, the data does not correlate with other information in the website. The problem here is not the information provided by the laboratories, but rather the manner in which that information is displayed on the website. Efforts are currently in progress to migrate this website onto the DOJ computer network so that it is maintained by DOJ rather than the contractor. Until then, the inconsistencies on the website will continue to reduce the credibility of the statistical information that it presents.

B. Are the program elements working?

Generally, the program elements are working. Efforts to identify and reduce the backlog of biological evidence are proving to be successful. The screening of biological evidence is having good success in yielding DNA samples that can be profiled and searched against local state and national DNA databases and offender databanks. Finally, the number of “cold hits” continues to increase as DNA profiles continue to be uploaded into those databases.

1. Efforts to identify and inventory qualifying cases for the Cold Hit Program yielded fewer cases than were originally anticipated.

There is no clear data on the number of cases that qualify for this program. This is primarily due to the fact that there is no tracking system in place to track the number of sexual assault evidence kits used by an emergency treatment room or collected as evidence by a law enforcement agency. When the program began, it was estimated that there should have been approximately 30,000 cases eligible for this program, based on the number of sexual assault cases reported. That estimate has now been reduced to approximately 10,280.

Staff from the Attorney General’s Office, OCJP, individual laboratories, and victim right’s groups made numerous attempts to educate local law enforcement agencies on the Cold Hit Program. Presentations were given to Chiefs of Police and Sheriffs organizations, Sexual Assault Investigator

and Property Clerk associations, as well as Victim Advocate groups to encourage the identification and submission of qualifying cases. However, it was discovered that initial projections would have to be lowered due to the following factors:

- **The initial estimate of the backlog was too high.**

When the program began, it was estimated that approximately 30,000 cases would be eligible for this program. This estimate was made based on available information concerning the number of “suspectless” sexual assaults, without the benefit of a comprehensive survey of the number of sexual assault kits actually retained as evidence. Once the kits were identified and submitted for inventory, it was learned that the estimate was high, and it was corrected.

- **Case evidence was not retained or is misplaced in many cases.**

Potential evidence relating to many projected cases could not be located by the law enforcement agencies. Internal audits of qualifying cases conducted by the law enforcement agencies revealed that some case evidence was not retained for an adequate period of time. In some instances, case evidence was destroyed before the statute of limitations expired. One audit revealed over 1000 potentially qualifying cases had been destroyed. Reasons for the destruction of evidence include lack of storage space, lack of knowledge regarding the statute of limitations, or a low priority for the retention of kits in old cases (evidence in current cases was a higher priority).

- **Many prospective cases were not deemed eligible for the program:**

Many laboratories did not accept projected cases because the cases were not believed to be eligible for the program. Many of those cases were not eligible because the perpetrator was known by the victim (some research indicates as high as 80% of perpetrators are known by the victim). But there was also confusion concerning the definition of the term “suspectless” under the original Program Guidance. In those cases where the perpetrator is unknown by the victim (the cases in which this program is designed to address), the victim may provide some minimal information regarding the attacker. This minimal information may include only a possible first or last name, and may be insufficient to identify a suspect. However, many of the laboratories believed that this partial information precluded them from accepting the case as an eligible case. The memorandums published to clarify the term “suspectless” resolved much of this confusion and allowed for many of those cases to be considered as eligible for this program.

- **Biological evidence was never collected in many prospective cases:**

Biological evidence was never collected in approximately 20% to 25% of all sexual assault cases in California. It is hypothesized that in these types of cases, the victim reported the assault to authorities too long after a medical exam would have been likely to yield any useful biological evidence.

2. Sixty-one percent of cases contained items of evidence that tested probative (positive) for the presence of biological material, and were deemed suitable for DNA profiling.

Factors that were determined to influence the probative rate during the screening process included the hygiene activity of the victim, the length of time before a forensic medical exam, the training level of the forensic examiners, and the screening strategies employed by the laboratories. Each is discussed in more detail below:

- **Hygiene activity of the victim:**

It is not uncommon for the victim of a sexual assault to have a strong urge to take a shower or bathe immediately after the assault as a result of the trauma experienced during and after the crime. Valuable biological evidence is frequently lost when this occurs. In some instances the offender will force the victim to bathe in order to intentionally destroy biological evidence.

- **Length of time before the forensic medical examination:**

In many cases, the victim will not report the sexual assault for a considerable length of time following the crime. The victim is often emotionally traumatized and confused and is hesitant to report the assault for fear of retribution or humiliation. Elapsed time diminishes the probability of finding biological evidence on the victim or at the crime scene. Many hospitals and law enforcement agencies will not conduct a forensic examination of the victim more than 72 hours after the assault.

- **Training level of forensic examiners:**

The California Medical Training Center (CMTC), operated by the University of California at Davis (UCD), routinely conducts training to medical personnel on the conduct of sexual assault forensic examinations. In addition, OCJP has funded UCD-CMTC to standardize the forensic examination forms used to collect and document evidence from a victim of sexual assault. Even so, there remains a great need for additional training in California. Some areas of the state have adequate coverage of Sexual

Assault Response Team members, while other areas may have to use regular nurses/doctors who are not specially trained in conducting forensic examinations of sexual assault victims. Adequate training is critical to the effective collection of biological evidence in a sexual assault case.

- **Screening strategy employed by laboratory:**

Per the Program Guidance, each laboratory is only required, at a minimum, to screen one item of evidence per kit that would most likely yield biological evidence. This requirement was included in an early version of the Program Guidance when it was thought that the laboratories were going to be inundated with kits, and therefore wouldn't have time to screen all pieces of evidence for biological material. In almost all cases, each item is being screened until biological evidence is identified, or all items have been screened negative. A laboratory, however, could only screen one item and get credit for completing this objective. Screening only one item in a kit lowers the possibility that positive biological evidence will be identified for profiling. Very few laboratories are employing this "single item" strategy. Additionally, some laboratories only look at the hospital prepared slides initially. If the slides for a particular case are negative for biological material, the case is set aside and other items will be reviewed in the future. Because of this strategy, there is a possibility that the screening probative rate may increase by the end of the program.

3. A DNA profile was obtained in at least 77% percent of screened cases.

In those cases where a DNA profile was not obtained, the causes were generally due to a small sample size, sample degradation resulting from poor storage techniques, or the original quality of the sample was poor.

4. Techniques for searching DNA profiles via CODIS continue to evolve.

The process of searching DNA profiles involves both state (DOJ) and federal (FBI) agencies. The current protocol involves several areas of duplicate effort, such as inspections of laboratories and background checks of criminalists. Additionally, the searches themselves lack a consistent protocol and many labs have provided feedback that the searches are not conducted as frequently as needed. These problems are being addressed as the program progresses.

5. The number of Cold Hits (suspects identified) by this program continues to increase.

The number of suspects that are identified each month continues to increase, and should continue to increase at a greater rate as the program progresses. It should be noted that the identification of a suspect through a cold hit is contingent upon the number of felons who have had reference samples collected, DNA typed, and added to the offender databank (Cal-DNA). As more offenders are added, the likelihood of a cold hit increases.

C. Are the funds being spent efficiently?

As previously mentioned, this program was originally allocated \$50,000,000 from the State General Fund by the state budget act of 2000. Since the anticipated workload has decreased, the amount of funding allocated to the program was reduced by OCJP to a total allocation of \$26,930,141 for all activities from the beginning of the program through the end of all activities in 2005. This results in a cost savings to the state of \$23,069,859 or 46% of the original allocation.

The distribution of funds to laboratories through this program was determined through a formula based on the projected number of cases that each laboratory would inventory, screen and profile. The laboratory projections were revised each year based on the experiences and lessons learned by the laboratories while implementing this program. In many instances, the laboratories chose to increase their projections with no additional allocation. In most cases, the allocation for each project varied from one year to the next based upon the performance of that laboratory. This method of funding distribution is believed to be the best method for allocating funds to the laboratories under this program.

However, there are known problem areas that indicate that funds may not have been spent efficiently.

- An audit of both projects operated by the DOJ found questioned costs in the amount of \$2,545,123. This audit was conducted by the Department of Finance at the request of OCJP and revealed unsupported costs, lack of adequate record keeping, and incomplete expenditure tracking to support the expenditure of grant funds. An audit resolution is currently in progress, but is expected to result in a reimbursement to the State General Fund by DOJ in an amount exceeding \$2,000,000.
- Although the Cold Hit Website performs many functions well (e.g. tracking cases, reporting statistics and performing administrative functions), the website did not originally meet the needs of many of its intended users. During the early stages of website development, future stakeholders (laboratory staff, OCJP, researchers, etc.) were not included in the planning of the website. This lack of collaboration has inhibited the functionality of the

website, and has led to additional costs for modifications. Finally, formal training of laboratory staff on how to input data into the Cold Hit Website has been inconsistent, contributing to the problems with the statistical information presented on the website.

D. Is the intended problem being addressed?

Yes. The purpose of this program is to eliminate the backlog of unscreened biological evidence in “suspectless” cases where all investigative leads have been exhausted. This program has determined that the backlog of unscreened biological evidence is far less than was originally estimated. The program has identified the biological evidence backlogged, and is making good progress in conducting DNA analysis of it.

The DNA “Cold Hit” Program has been successful in identifying suspects in many cold cases. The following provides some examples of cold cases where this program has provided valuable assistance.

- In the late 1970’s, the East Area Rapist randomly broke into homes and raped 40 separate women between Sacramento and San Ramon, CA. The crimes ceased at the end of the decade without the perpetrator ever having been identified. But DNA evidence from crimes committed by the East Area Rapist was submitted to the Contra Costa County crime laboratory for analysis through this program. Remembering an old rumor that the suspect might have moved to Southern California, a search was made in that area resulting in a match with a DNA profile in the Orange County crime laboratory. This match has now linked the DNA of the East Area Rapist with that of an elusive serial killer who murdered 10 people in Southern California coastal communities between 1979 and 1986. Although the perpetrator still has not been identified, this case-to-case match provides hope that the perpetrator of all of these crimes will be identified as the DNA profiles of more criminals are entered into the system.
- On August 25, 1979, an 8-year old girl was brutally raped and murdered in San Pablo, CA. Semen was collected from the body and placed in an evidence room, where it sat for 22 years. Through this program, a DNA profile was made and submitted to the state and federal databases. This resulted in a “cold hit” identifying Joseph Cordova Jr. as the suspect. Cordova was a habitual child molester who at the time of the DNA analysis was incarcerated in a Colorado prison. Cordova was subsequently charged with molesting, raping and murdering the 8-year old girl.
- In 1993, the bodies of two boys were found in a marshy area near their homes in southern San Diego, CA. During the subsequent investigation, police questioned over 1,500 people and reviewed over 500 suspects without solving the case. Criminalists working on the investigation took swabs from the

deceased boys to preserve as evidence in the event that those swabs would later be of value. At the time DNA analysis was not feasible. As a result of this program, a random search was made of the state database and the DNA from the swabs was matched with Scott Erskine, an inmate at Wasco State Prison.

- In 1995, Michael Dwight Hill lured a 14-year old girl to a garage in Inglewood, CA, where he sexually assaulted her and hit her when she tried to flee. The crime was not initially solved and sat dormant until August of 2001 when the Inglewood Police Department submitted DNA evidence on the case for analysis under this program. The analysis identified Hill, a registered sex offender, and subsequently resulted in his conviction on two counts of rape, one count of penetration by a foreign object and one count of assault.
- On November 8, 2000, a 12 year old girl, was kidnapped off of the street in Rancho Cordova, CA, and driven to Feather River in Sutter County where she was sexually assaulted and then killed. Nine months later, Justin Weinberger was stopped for a traffic violation in New Mexico. A check by police revealed that Weinberger was wanted on a federal warrant for child pornography. He was detained and voluntarily provided a DNA sample. Analysis of that DNA sample resulted in a match with biological evidence identifying Weinberger as the suspect in this case. Weinberger was subsequently extradited to California where he was tried and convicted of the murder of the 12-year old girl.

These are only few of the many cases that have identified perpetrators through DNA analysis and the search of DNA databases.

E. What lessons have been learned for other agencies?

For agencies that embark on a similar program, it is imperative that stakeholders at all levels (city, county, state, and federal) are consulted and “buy into” the program to ensure that it runs smoothly, and any obstacles are dealt with effectively and efficiently. Additionally, the various stakeholders involved in a project of this magnitude (law enforcement executives, crime laboratory directors, criminalists, sexual assault investigators, property clerks, funding organizations, victim’s rights groups, and others) must come together to solve complications, which are almost certain to arise with such a complex program.

The following steps are recommended for agencies conducting DNA analysis of sexual assault cases.

1. Increase the public’s knowledge on the power of DNA analysis.

Although DNA analysis is becoming more familiar to the public at large, many individuals are still unaware of the ability of DNA analysis to identify the

perpetrators of sexual assaults. Past and future victims of sexual assault (and other crimes) are more likely to come forward and report the incident if they know this relatively new technology can be used to identify the perpetrator.

2. Standardize procedures for the collection and inventory of evidence.

- All biological evidence should be collected by trained forensic medical staff (SART based training);
- Evidence from the medical examination should be collected using a standardized Sexual Assault Evidence Kit (SAEK).
- Sexual assault kits and other forms of biological evidence should be retained and stored based on the statute of limitations and recognized uniform storage procedures.

3. Continually monitor and improve the screening of evidence for biological material.

- Develop a tracking system to ensure that all sexual assault cases are processed to completion;
- Review screening rates (probative/non-probative for profiling) to identify training needs for criminalists and medical examiners; and
- Incorporate the latest technological advances (move towards automation).

4. Improve methods for obtaining a DNA profile.

- Ensure that all criminalists conducting DNA profiling have appropriate background (establishment of a DNA Academy);
- Review probative rates to identify training needs for criminalists and Medical Examiners; and
- Incorporate the latest techniques and equipment (move towards automation).

5. Improve methods for searching DNA profiles.

- Ensure that reference samples from all qualified felons are collected in a timely manner, analyzed, and added to the offender databank;
- Coordinate and streamline the receiving, searching, and notification of search results from CODIS; and
- Establish protocols to search profiles on a regular basis, with regular review/audit done by both the laboratory of origin and CODIS.

6. Improve procedures for identifying offenders and linking cases.

- Offenders identified through the use of DNA profiling should undergo a review to determine if they could/should have been identified earlier through other investigative methods;

- Methods utilized by the perpetrators (victim selection, tactics, location) should be studied to determine patterns that can be used to aid future investigations; and
- Attention should be paid to those individuals who were eliminated as suspects, to assist in future investigations.

7. Track the disposition of cases.

Review and tracking of cases where suspects are identified through the use of DNA may be helpful to determine if charges were filed; if the case led to a plea agreement; or if the jury convicted the perpetrator on DNA evidence alone.

IV. CONCLUSION

At the time of this report, the DNA Cold Hit Program has been operational for slightly less than three years. A great deal of progress has been made during that time. The backlog of biological evidence on “suspectless” sexual assault cases has been identified and determined to be far less severe than originally anticipated. Many improvements have been made in the standardization of procedures for DNA analysis, and critical equipment has been procured for crime laboratories. In addition, this program has increased the number of crime laboratories certified under federal standards. Good progress has been made in conducting inventories, screening and profiling DNA evidence, and it is expected that the backlog of biological evidence will be processed in accordance with the timelines established by this program.

However, there are many opportunities that still await future developments.

- Sexual assault evidence kits should be standardized for the state. The California Association of Crime Laboratory Directors is currently working on this task.
- A system should be developed to track the number of sexual assault kits used by hospitals in conducting forensic examinations of sexual assault victims and collected as evidence by law enforcement agencies. This would provide a measurable method of determining the extent of biological evidence needing screening in California.
- Forensic examinations of sexual assault victims should be reported using electronic forms (OCJP Forms 923, 925 and 930 forensic examination forms) for future tracking and studies. There is currently a project in process by OCJP to develop electronic versions of these forms.
- A database should be developed to electronically capture information from the OCJP forensic examination forms, which could then be combined with the outcome of the DNA profiling. This would allow for a comparison with the case disposition information after a suspect is identified, and provide a comprehensive source of information regarding the use of DNA to solve crimes, specifically sexual assaults.
- Finally, further evaluation of the DNA Cold Hit Program should be conducted following the completion of all activities in 2005, contingent upon the availability of resources.

It is expected that new opportunities will continue to become available as DNA databases continue to grow and the technology for DNA analysis continues to develop.

APPENDIX A: THE CALIFORNIA DNA COLD HIT PROGRAM GUIDANCE

This version of the program guidance reflects changes based upon recommendations from participants of the Office of Criminal Justice Planning's DNA Program Guidance Meeting held on February 22, 2002, and replaces the previous version dated October 17, 2000.

Overview

This document outlines the minimum technical requirements necessary for a public laboratory to participate in the Office of Criminal Justice Planning (OCJP)/ California Department of Justice (DOJ) sexual assault evidence backlog project. The following items are part of the required agreement between OCJP/DOJ and public crime laboratories.

The scope of this project includes the receipt and tracking of unsolved or suspectless sexual assault case evidence from local law enforcement agencies, data entry of case information into an evidence tracking system, and screening of the unsolved sexual assault evidence. The primary purpose of this project is to analyze, at a minimum, the single most probative item of evidence in each case and to develop the largest number of unsolved case profiles to search against the *Convicted Offender DNA Data Bank*, and against other case profiles. The cases that test positive for sperm or other probative biological evidence will be further processed for short tandem repeat (STR) analysis. The STR evidence profiles will be submitted to the DOJ's Cal-DNA Laboratory for upload into the Combined DNA Index System (CODIS). The profiles will be searched against the *Convicted Offender DNA Data Bank*, and against other case profiles to determine if any matches exist.

Laboratories performing extraction and profiling must submit a copy of their most recent accreditation document from the American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB) or certification from the National Forensic Science Technology Center (NFSTC) upon request. The profiling laboratory must comply with standards for a quality assurance program for DNA analysis, issued by the Director of the Federal Bureau of Investigation (FBI) pursuant to the DNA Identification Act of 1994, entitled *Quality Assurance Standards for Forensic DNA Testing Laboratories* and with the FBI's *NDIS Standards for Acceptance of DNA Data*. The laboratory analysts must routinely participate in a proficiency-testing program as required by ASCLD/LAB and the FBI's quality assurance standards. All analysts examining evidence for this program shall perform proficiency testing according to the protocol used in their suspectless casework program.

External quality assurance of screening and profiling laboratories as well as the evidence-tracking database will be managed by the DOJ. The DOJ will train local laboratory staff on the use of a statewide suspectless evidence tracking system. The DOJ's Cal-DNA Laboratory shall retain the right to inspect the screening and profiling laboratories. The screening and profiling laboratories shall make their protocols and

procedures used in this testing available for review. Relevant validation documentation shall be made available for review as deemed appropriate by the Cal-DNA Laboratory. Approximately 5% of all cases examined by this project will be reviewed as part of the external quality assurance process. No more than two blind proficiency cases or sample sets per year are expected to be submitted to participating laboratories by the Cal-DNA Laboratory or its agents as part of the quality assurance program. Additional quality assurance measures may be required as necessary to ensure the quality of the data.

Modifications to this Program Guidance shall only be effective if submitted in writing and approved by OCJP and DOJ. From time to time, however, it may be necessary to revise the requirements to reflect changes in policies, procedures and/or technology. In the event that a revision to any or all of the technical requirements is made, it is agreed that OCJP/ DOJ shall provide such revision to the participating laboratories and that thereafter such revision shall be incorporated in and made a part of this Program Guidance without the need to revise the grant award agreement.

Technical Requirements:

Eligible Cases

This program will focus on the backlog of sexual assault cases that are unsolved or suspectless. Eligible cases can include, but are not limited to:

- "Suspectless" cases where no investigative leads have been established, all investigative leads have been exhausted, or named suspects have been eliminated.
- Cases that could be prosecuted under the current statute of limitations or determined to be prosecutable by the District Attorney's office.
- Cases with a sexual connection or component, which can include, but are not limited to the following Penal Codes and attempts: 187 PC, 190 PC, 190.05 PC, 192 (a), 220 PC, 243.4 PC, 261 PC, 286 PC, 288 PC, 288a PC, 289 PC, and 314 PC.
- Cases can be submitted to the Cold Hit Program through September 30, 2003.

Upon completion of any stage of casework, every effort should be made to enter case information into the website within 5 working days. Information from the website will be used to verify accomplishments as identified in the Progress Reports.

Laboratories shall adhere to standards required by Federal and State laws including NDIS and quality assurance standards. The laboratories shall also perform analyses in a manner consistent with ASCLD/LAB standards.

Each public laboratory is responsible for coordinating with the local law enforcement agencies on case submission for screening. With the submission of each eligible case, the public laboratory shall request that law enforcement agencies submit the following:

1) records of any previous forensic examinations conducted on the evidence, 2) storage conditions of the evidence, 3) complete chain of custody record for the case evidence, and 4) a medical report when available.

Screening Laboratory The following guidelines relate to evidence with spermatozoa, however, it is understood that there are other biological materials (e.g. saliva, blood, hair, tissue, etc.) that may be examined.

1. The screening laboratory shall inventory all evidence from a sexual assault kit and shall document the results of the examination on a standard screening inventory sheet (attached in Appendix I) or equivalent.
2. If outsourcing is required, a copy of the completed inventory sheet (attached in Appendix I) shall be sent to the profiling laboratory.
3. Screening laboratories shall establish and/or follow their current procedures, and minimize the amount of sample consumed in this process. The screening laboratory shall use techniques designed to minimize potential DNA contamination.
4. If sufficient spermatozoa are detected, the evidence will be extracted by the profiling laboratory or submitted to a profiling laboratory approved by OCJP and DOJ.
5. An estimate of the total number of sperm on the examined slide shall be noted on the inventory sheet.
6. The screening laboratory shall microscopically examine all relevant hospital prepared slides, or a laboratory prepared slide from a relevant piece of evidence, using a histochemical staining procedure. If no spermatozoa are detected but adequate nucleated cellular material (e.g. epithelial cells) is present, a negative screening report shall be issued and the screening laboratory shall be reimbursed.
7. If adequate cellular material (e.g. epithelial cells) is not present on the hospital prepared slides, then the screening laboratory shall examine relevant evidence for spermatozoa. If no spermatozoa are detected, a negative screening report shall be issued and the laboratory shall be reimbursed for the screening.
8. If out-sourcing is required, the screening laboratory shall ordinarily submit no more than half of the sample to the profiling laboratory.
9. If a sample must be consumed for analysis, all attempts should be made to have a public laboratory profile the sample in order to minimize costs. The laboratory should also consult with the appropriate law enforcement agencies (e.g. District Attorney's Office, Public Defender's Office, etc.).

10. All laboratory prepared slides shall be retained either by the screening laboratory or with the evidence.
11. If a sexual assault kit is not available, the laboratory shall be required to examine a minimum of one item of evidence deemed to be the most likely source of probative information (e.g. panties, bedding, etc.) in order to meet the reimbursement requirements.
12. The DOJ shall provide standard packaging for evidence that is to be outsourced for profiling.
13. Screening laboratories requiring outsourcing may choose from a list provided by OCJP/DOJ of ASCLD/LAB accredited or NFSTC certified public and private labs. Vendor contracts and billing shall be managed by the DOJ.
14. Any remaining evidence shall be maintained under appropriate storage conditions according to the screening laboratory's current policies.
15. Refer to Appendix II-IV for flowcharts of examples of the tracking and screening process.

Profiling Laboratory

1. When available, the victim reference shall be tested. The reference sample may be blood, saliva, hair root or any other appropriate sample. If the victim has engaged in recent consensual sexual intercourse, a reference sample from that consensual sex partner should be obtained and analyzed.
2. The following quality assurance controls shall be included in each analysis set: reagent blanks, a positive amplification control, and a negative amplification control.
3. Laboratories may be requested to analyze additional quality assurance samples, provided by the CAL-DNA Laboratory, to ensure the quality of data submitted.
4. Human DNA quantitation is required for evidence extracts.
5. Both the sperm and nonsperm differential extraction fractions shall be profiled. The nonsperm fraction profile from a sample known to have originated from the victim (e.g. a vaginal swab) shall be compared with that of the victim reference for concordance. If these two samples are not concordant, the profiling laboratory must resolve the discrepancy and shall contact the CAL-DNA Laboratory if unable to resolve the discrepancy. All documentation relating to the resolution of the discrepancy shall be retained at the profiling laboratory.

6. As appropriate, alleles from the nonsperm fraction in a mixture may be subtracted from the sperm fraction to determine a searchable profile.
7. All cases should be verified by a second qualified analyst and documented in accordance with the laboratory protocol. A qualified individual shall technically review all cases.
8. When sample size permits, public laboratories are required to attempt profiling at all 13 CODIS core loci by the end of the grant. The 13 CODIS core loci are FGA, vWA, D3S1358, CSF1PO, TPOX, THO1, D18S51, D21S11, D8S1179, D7S820, D13S317, D5S818, and D16S539.
9. Instrumentation and DNA typing kits used for profiling shall meet the NDIS requirements.

Confirmation of Data Bank Hits (Matches)

1. When possible, the public laboratory should perform the confirmation of data bank matches.
2. The profiling laboratory shall analyze a new reference sample from the suspect as part of the confirmation process. Analysis of additional evidence or reanalysis of items previously tested may also be required during the confirmation process. If the victim reference sample was not previously analyzed, testing should be conducted as part of the match confirmation process when possible.
3. Confirmation analysis should follow the technical provisions provided in the profiling section above.
4. The profiling laboratory shall comply with all reasonable discovery requests.
5. The profiling laboratory shall provide expert testimony when required.

Fee Structure

The public laboratories should use the fee structure as a guide to build a budget proposal, and forecast program goals and objectives, for submission to OCJP.

The following objectives and corresponding values should be used when preparing a budget proposal:

Inventory: \$50 to qualifying agencies for each case submitted. Local laboratories are responsible for reimbursing law enforcement agencies for the submission of evidence.

Screening: \$250 per case.

Profiling: \$1700 when 9 loci are attempted, and \$2000 when 13 loci are attempted (core loci required by CODIS).

Confirmation of Hits: \$4,500 per case.

In order to get credit for work accomplished, the above objectives must be completed according to the criteria outlined in the Program Guidance.

Appendix B: Funding Allocations by Laboratory

Grantee	2000/01	2001/02	2002/03	3 Year Total	2003/05
Alameda County Sheriff's Department	\$92,562	\$102,393	\$51,145	\$246,100	
Contra Costa County Sheriff's Department	\$36,932	\$99,335	\$40,655	\$176,922	\$24,000
Kern County District Attorney's Office	\$258,549	\$133,949	\$167,746	\$560,244	
Los Angeles City Police Department	\$281,616	\$0	\$510,335	\$791,951	\$35,450
Los Angeles County Sheriff's Department	\$774,545	\$614,270	\$701,536	\$2,090,351	
Oakland City Police Department	\$176,301	\$363,748	\$714,495	\$1,254,544	
Orange County Sheriff's Department	\$251,226	\$428,002	\$438,134	\$1,117,362	
Sacramento County District Attorney's Office	\$609,000	\$550,491	\$930,709	\$2,090,200	\$667,800
San Bernardino County Sheriff's Department	\$81,500	\$85,400	\$17,100	\$184,000	
San Diego City Police Department	\$315,356	\$320,558	\$179,852	\$815,766	\$173,091
San Diego County Sheriff's Department	\$50,425	\$130,250	\$109,325	\$290,000	
San Francisco City Police Department	\$360,538	\$455,655	\$533,984	\$1,350,177	\$592,707
San Mateo County Sheriff's Department	\$49,765	\$27,931	\$0	\$77,696	
Santa Clara County District Attorney's Office	\$306,345	\$304,612	\$286,143	\$897,100	
Ventura County Sheriff's Department	\$168,386	\$201,289	\$251,895	\$621,570	
State of California Department of Justice Laboratories	\$2,644,532	\$1,681,501	\$0	\$4,326,033	
State of California Department of Justice Administrative Project	\$5,496,166	(\$421,036)	\$3,471,947	\$8,547,077	
GRAND TOTAL	\$11,953,744	\$5,078,348	\$8,405,001	\$25,437,093	\$1,493,048